







**U.S. DEPARTMENT OF COMMERCE**  
**National Bureau of Standards**  
Boulder, Colorado 80302

September 1973

TO: Cryogenics Division Mailing List

SUBJECT: Announcement of Publications, Supplement No. 1

Gentlemen:

Attached is Supplement Number One to our new list of publications. We have been adding supplements on an annual and semi-annual basis since 1966. We felt that it was appropriate to combine the original and all of the supplements into one publication again and start the supplement routine over again. We also put a little extra effort into the catalog and put it out as an NBS Technical Note. The Technical Note lists all publications of the Cryogenics Division for the period 1953 through 1972 and includes subject and author indexes. For those of you interested in obtaining a copy, the bibliographic and order information is as follows:

Publications and Services of the National Bureau of Standards - Cryogenics Division - Institute for Basic Standards, Boulder, Colorado, 1953 - 1972, by J. R. Mendenhall, V. J. Johnson and N. A. Olien, National Bureau of Standards Technical Note 639 (August 1973). Copies are available for 75¢ from Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402 (Order by No. C13.46:639).

The attached constitutes the first supplement to NBS-TN 639 and covers the period January-July 1973.

Sincerely,

NEIL A. OLIEN  
Acting Chief, Cryogenic Data Center  
Cryogenics Division  
Institute for Basic Standards

Enclosures



NATIONAL BUREAU OF STANDARDS  
INSTITUTE FOR BASIC STANDARDS  
CRYOGENICS DIVISION  
BOULDER, COLORADO 80302

List of Publications, Supplement No. 1  
January to July 1973

NOTICE: Copies of these publications may be obtained as indicated by the superscript at the end of each item. The superscripts refer to availability and are listed on page 4.

- R-728 LIQUID DENSITIES OF OXYGEN, NITROGEN, ARGON, AND PARAHYDROGEN, by H. M. Roder, R. D. McCarty and V. J. Johnson. Nat. Bur. Stand. (U.S.), Tech. Note No. 361 (Revised), 181 pages (Oct 1972). (C13. 46:361 Revised - \$1. 25)<sup>3</sup>
- R-729 ASRDI OXYGEN TECHNOLOGY SURVEY. VOLUME I: THERMOPHYSICAL PROPERTIES. Edited by H. M. Roder and L. A. Weber. NASA Spec. Publ. No. 3071, 432 pages (1972). (NASA SP-3071)<sup>2</sup>
- R-730 THERMOPHYSICAL PROPERTIES OF HELIUM-4 FROM 2 TO 1500 K WITH PRESSURES TO 1000 ATMOSPHERES, by R. D. McCarty. Nat. Bur. Stand. (U.S.), Tech. Note No. 631, 161 pages (Nov 1972). (C13. 46:631 - \$1. 25)<sup>3</sup>
- R-731 THE SOLID + VAPOR AND LIQUID + VAPOR PHASE EQUILIBRIUM PROPERTIES OF NEON + KRYPTON, by R. C. Miller, A. J. Kidnay and M. J. Hiza. J. Chem. Thermodyn. Vol 4, No. 6, 807-18 (Nov 1972). (No charge for single copy)<sup>6</sup>
- R-732 COMPUTED TOTAL RADIATION PROPERTIES OF COMPRESSED OXYGEN BETWEEN 100 and 1000 K, by M. C. Jones. Int. J. Heat Mass Transfer Vol 15, No. 11, 2203-15 (Nov 1972). (No charge for single copy)<sup>6</sup>
- R-733 SUPERCONDUCTING QUANTUM INTERFERENCE DEVICES: AN OPERATIONAL GUIDE FOR RF-BIASED SYSTEMS, by D. B. Sullivan. Nat. Bur. Stand. (U.S.), Tech. Note No. 629, 47 pages (Nov 1972). (C13. 46:629 - 50¢)<sup>3</sup>
- R-734 DEVELOPMENTS IN CRYOELECTRONICS, by R. A. Kamper and D. B. Sullivan. Nat. Bur. Stand. (U.S.), Tech. Note No. 630, 73 pages (Nov 1972). (C13. 46:630 - 70¢)<sup>3</sup>
- R-735 ANALYSIS OF THE TRANSPORT COEFFICIENTS FOR SIMPLE DENSE FLUIDS: APPLICATION OF THE MODIFIED ENSKOG THEORY, by H. J. M. Hanley, R. D. McCarty and E. G. D. Cohen. Physica Vol 60, No. 2, 322-56 (Aug 1972). (No charge for single copy)<sup>6</sup>
- R-736 ANALYSIS OF THE VISCOSITY AND SECOND VIRIAL COEFFICIENTS OF NON-POLAR POLYATOMIC GASES USING THE m-6-8 POTENTIAL, by J. F. Ely and H. J. M. Hanley. Mol. Phys. Vol 24, No. 3, 683-7 (Sep 1972). (No charge for single copy)<sup>6</sup>
- R-737 MATERIAL VARIABILITY AS MEASURED BY LOW TEMPERATURE ELECTRICAL RESISTIVITY, by A. F. Clark and P. V. Tryon. Cryogenics Vol 12, No. 6, 451-61 (Dec 1972). (No charge for single copy)<sup>6</sup>
- R-738 LIQUID-VAPOR EQUILIBRIA AT 112.00 K FOR SYSTEMS CONTAINING NITROGEN, ARGON AND METHANE, by R. C. Miller, A. J. Kidnay and M. J. Hiza. AIChE J. Vol 19, No. 1, 145-51 (Jan 1973). (No charge for single copy)<sup>6</sup>
- R-739 ASRDI OXYGEN TECHNOLOGY SURVEY. VOLUME III: HEAT TRANSFER AND FLUID DYNAMICS ABSTRACTS OF SELECTED TECHNICAL REPORTS AND PUBLICATIONS. Edited by A. F. Schmidt. NASA Spec. Publ. No. 3076, 77 pages (1972). (NASA SP-3076)<sup>1</sup>
- R-740 QUANTUM MECHANICAL MEASUREMENT OF rf ATTENUATION, by R. A. Kamper, M. B. Simmonds, R. T. Adair and C. A. Hoer. Applied Superconductivity Conference (Proc. 1972 Conf., Annapolis, Md., May 1-3, 1972) 696-700. IEEE, Inc., N. Y. (1972). (No charge for single copy)<sup>6</sup>
- R-741 PRECISE ELECTRICAL MEASUREMENTS AT LOW TEMPERATURE, by D. B. Sullivan. Applied Superconductivity Conference (Proc. 1972 Conf., Annapolis, Md., May 1-3, 1972) 631-9. IEEE, Inc., N. Y. (1972). (No charge for single copy)<sup>6</sup>

- R-742 A REVIEW OF THE PROPERTIES AND APPLICATIONS OF SUPERCONDUCTING POINT CONTACTS, by J. E. Zimmerman. Applied Superconductivity Conference (Proc. 1972 Conf., Annapolis, Md., May 1-3, 1972) 544-61. IEEE, Inc., N. Y. (1972). (No charge for single copy)<sup>6</sup>
- R-743 CAVITATION IN LIQUID CRYOGENS - II. HYDROFOIL, by J. Hord. National Aeronautics and Space Administration, Washington, D. C., Contr. Rept. No. 2156, 162 pages (Jan 1973). (NASA CR-2156)<sup>1</sup>
- R-744 CRITICAL TWO-PHASE FLOW FOR CRYOGENIC FLUIDS, by R. V. Smith, K. R. Randall and R. Epp. Nat. Bur. Stand. (U.S.), Tech. Note No. 633, 80 pages (Jan 1973). (C13. 46:633 - 70¢)<sup>3</sup>
- R-745 FLEXIBLE LAMINATES FOR THERMALLY GROUNDED TERMINAL STRIPS AND SHIELDED ELECTRICAL LEADS AT LOW TEMPERATURES, by R. Radebaugh, N. V. Frederick and J. D. Siegwarth. Cryogenics Vol 13, No. 1, 41-3 (Jan 1973). (No charge for single copy)<sup>6</sup>
- R-746 ON THE UTILITY OF THE m-6-8 POTENTIAL FUNCTION, by H. J. M. Hanley and M. Klein. Nat. Bur. Stand. (U.S.), Tech. Note No. 628, 77 pages (Nov 1972). (C13. 46:628 - 70¢)<sup>3</sup>
- R-747 A NEW TECHNIQUE FOR RF MEASUREMENTS USING SUPERCONDUCTORS, by R. A. Kamper, M. B. Simmonds, R. T. Adair and C. A. Hoer. Proc. IEEE Vol 61, No. 1, 121-2 (Jan 1973). (No charge for single copy)<sup>6</sup>
- R-748 COMPUTATION OF SPECTRAL DATA FOR A JOSEPHSON JUNCTION CIRCUIT, by E. G. Johnson, Jr. and D. G. McDonald. Nat. Bur. Stand. (U.S.), Tech. Note No. 627, 63 pages (Nov 1972). (C13. 46:627 - 60¢)<sup>3</sup>
- R-749 THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF GASEOUS AND LIQUID FLUORINE, by H. J. M. Hanley and R. Prydz. J. Phys. Chem. Ref. Data Vol 1, No. 4, 1101-14 (Oct-Dec 1972). (No charge for single copy)<sup>6</sup>
- R-750 LORENZ RATIOS OF TECHNICALLY IMPORTANT METALS AND ALLOYS, by J. G. Hust and L. L. Sparks. Nat. Bur. Stand. (U.S.), Tech. Note No. 634, 133 pages (Feb 1973). (C13. 46:634 - \$1. 25)<sup>3</sup>
- R-751 THE JOSEPHSON JUNCTION AND ITS RAMIFICATIONS IN STANDARDS AND MEASUREMENTS, by R. A. Kamper. Joint Measurement Conf., Proc. (National Bureau of Standards, Boulder, Colo., June 21-23, 1972) pages 113-7. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)<sup>6</sup>
- R-752 POSSIBLE PARAMETRIC CAPACITANCE IN JOSEPHSON JUNCTIONS, by J. E. Zimmerman. Phys. Lett. Vol 42A, No. 5, 375-6 (Jan 1973). (No charge for single copy)<sup>6</sup>
- R-753 DIRECTORY OF EUROPEAN LOW TEMPERATURE RESEARCH, by E. A. Edelsack, R. Kropschot, N. A. Olien and J. L. Olsen. Office of Naval Research, London, England, Rept. No. ONRL-D-16-73, 37 pages (Feb 1973). (Single copy available from Office of Naval Research, Branch Office, London, Box 39, FPO, New York, New York 09510 - No charge)
- R-754 POISSON'S RATIO FOR POLYCRYSTALS, by H. M. Ledbetter. J. Phys. Chem. Solids Vol 34, No. 4, 721-3 (Apr 1973). (No charge for single copy)<sup>6</sup>
- R-755 USE OF SUPERCONDUCTORS IN THERMAL INSULATIONS, by M. C. Jones. Cryogenics Vol 13, No. 2, 83-4 (Feb 1973). (No charge for single copy)<sup>6</sup>
- R-756 MECHANICAL, THERMAL, AND ELECTRICAL PROPERTIES OF SELECTED POLYMERS, by R. P. Reed, R. E. Schramm and A. F. Clark. Cryogenics Vol 13, No. 2, 67-82 (Feb 1973). (No charge for single copy)<sup>6</sup>
- R-757 ESTIMATION OF DEBYE TEMPERATURES BY AVERAGING ELASTIC COEFFICIENTS, by H. M. Leabetter. J. Appl. Phys. Vol 44, No. 4, 1451-4 (Apr 1973). (No charge for single copy)<sup>6</sup>
- R-758 SOME APPLICATIONS OF CRYOGENICS TO HIGH SPEED GROUND TRANSPORTATION, by V. D. Arp, A. F. Clark and T. M. Flynn. Nat. Bur. Stand. (U.S.), Tech. Note No. 635, 29 pages (Feb 1973). (C13. 46:635 - 35¢)<sup>3</sup>

- R-759 PORTABLE HELIUM DEWARS FOR USE WITH SUPERCONDUCTING MAGNETOMETERS, by J. E. Zimmerman and J. D. Siegwarth. Cryogenics Vol 13, No. 3, 158-9 (Mar 1973). (No charge for single copy)<sup>6</sup>
- R-760 VELOCITY OF SOUND IN SATURATED AND COMPRESSED FLUID OXYGEN, by G. C. Straty and B. A. Younglove. J. Chem. Thermodyn. Vol 5, No. 3, 305-12 (May 1973). (No charge for single copy)<sup>6</sup>
- R-761 A DIRECTORY OF EUROPEAN LOW TEMPERATURE RESEARCH (Review of Directory - See R-753), by E. A. Edelsack, R. H. Kropschot, N. A. Olien and J. L. Olsen. Cryogenics Vol 13, No. 3, 132-3 (Mar 1973). (No charge for single copy)<sup>6</sup>
- R-762 CAVITATION IN LIQUID CRYOGENS. III. OGIVES, by J. Hord. National Aeronautics and Space Administration, Washington, D. C., Contr. Rept. No. 2242, 244 pages (May 1973). (NASA CR-2242)<sup>1</sup>
- R-763 SURVEY OF NOISE THERMOMETRY, by R. A. Kamper. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 1, 349-54. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)<sup>6</sup>
- R-764 CALIBRATION OF CAPSULE PLATINUM RESISTANCE THERMOMETERS AT THE TRIPLE POINT OF WATER, by L. L. Sparks and R. L. Powell. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 2, 1415-21. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)<sup>6</sup>
- R-765 THE FITTING OF RESISTANCE THERMOMETER DATA BY ORTHOGONAL FUNCTIONS, by R. L. Powell, W. J. Hall and J. G. Hust. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 2, 1423-31. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)<sup>6</sup>
- R-766 METHODS FOR CRYOGENIC THERMOCUPLE THERMOMETRY, by J. G. Hust, R. L. Powell and L. L. Sparks. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 3, 1525-35. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)<sup>6</sup>
- R-767 REFERENCE DATA FOR THERMOCUPLE MATERIALS BELOW THE ICE POINT, by L. L. Sparks and R. L. Powell. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 3, 1569-77. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)<sup>6</sup>
- R-768 REVISION OF THE STANDARD REFERENCE DATA FOR THERMOCOUPLES, by R. L. Powell. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 3, 1579-84. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)<sup>6</sup>
- R-769 PROPERTIES OF NONSUPERCONDUCTING TECHNICAL SOLIDS AT LOW TEMPERATURES, by F. R. Fickett. International Conference on Magnet Technology, 4th (Proc. 1972 Conf., Brookhaven National Lab., Upton, N. Y., Sep 19-22, 1972) 498-516. Atomic Energy Commission, Washington, D. C. (1972). (No charge for single copy)<sup>6</sup>
- R-770 TENSILE PROPERTIES OF POLYURETHANE AND POLYSTYRENE FOAMS FROM 76 TO 300 K, by R. P. Reed, J. M. Arvidson, and R. L. Durcholz. Paper E-3 in Advances in Cryogenic Engineering Vol 18, 184-93. Plenum Press, New York (1973). (No charge for single copy)<sup>6</sup>
- R-771 COMPRESSIVE PROPERTIES OF POLYURETHANE AND POLYSTYRENE FOAMS FROM 76 TO 300 K, by J. M. Arvidson, R. L. Durcholz, and R. P. Reed. Paper E-4 in Advances in Cryogenic Engineering Vol 18, 194-201. Plenum Press, New York (1973). (No charge for single copy)<sup>6</sup>
- R-772 CONTINUOUS LIQUID LEVEL MEASUREMENTS WITH TIME-DOMAIN REFLECTOMETRY, by J. E. Cruz, E. H. Rogers, and A. E. Heister. Paper H-4 in Advances in Cryogenic Engineering Vol 18, 323-7. Plenum Press, New York (1973). (No charge for single copy)<sup>6</sup>

- R-773 LOW-TEMPERATURE NITROGEN EJECTOR PERFORMANCE, by D. E. Daney, P. M. McConnell and T. R. Strobridge. Paper L-4 in Advances in Cryogenic Engineering Vol 18, 476-85. Plenum Press, New York (1973). (No charge for single copy)<sup>6</sup>
- R-774 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1972 Cryogenic Engineering Conf., Colorado Univ., Boulder, Aug 9-11, 1972) Vol I8, K. D. Timmerhaus, Ed., 533 pages. Plenum Press, New York (1973). (Plenum Press, New York - \$30.00)<sup>4</sup>
- R-775 KEEPING UP WITH LNG, by N. A. Olien and L. A. Sarkes. Amer. Gas Assoc. Monthly Vol 55, No. 7-8, 29, 31 (Jul-Aug 1973). (No charge for single copy)<sup>6</sup>
- B-965 PROCESSES AND EQUIPMENT INVOLVING LIQUEFIED NATURAL GAS (LNG) AND METHANE. 308 pages, indexed by subject and author (Jan 1973). (\$25.00)<sup>6</sup>
- B-1055 THERMOPHYSICAL PROPERTIES OF METHANE - A SELECTED BIBLIOGRAPHY. 61 pages, indexed by property, phase and author (Sep 1973). (\$8.00)<sup>6</sup>
- B-I056 PROPERTIES OF METHANE MIXTURES - A SELECTED BIBLIOGRAPHY. 94 pages, indexed by property, system and author (Sep 1973). (\$10.00)<sup>6</sup>
- D-2 HEAT TRANSFER TO SLUSH HYDROGEN, by C. Sindt. Paper presented at 1973 Cryogenic Engineering Conference, Georgia Institute of Technology, Atlanta, Aug 8-10, 1973. (No charge for single copy)<sup>6</sup>
- D-3 FORCED CONVECTION HEAT TRANSFER TO SUBCRITICAL HELIUM I, by P. J. Giarratano, R. C. Hess and M. C. Jones. Paper presented at 1973 Cryogenic Engineering Conference, Georgia Institute of Technology, Atlanta, Aug 8-10, 1973. (No charge for single copy)<sup>6</sup>
- K-1 THE SPECIFIC HEATS,  $C_{SAT}$  AND  $C_V$  OF COMPRESSED AND LIQUEFIED METHANE, by B. A. Younglove. Paper presented at 1973 Cryogenic Engineering Conference, Georgia Institute of Technology, Atlanta, Aug 8-10, 1973. (No charge for single copy)<sup>6</sup>
- K-9 LIQUID-VAPOR EQUILIBRIA IN THE NITROGEN-METHANE SYSTEM BETWEEN 95 AND 120 K, by W. R. Parrish and M. J. Hiza. Paper presented at 1973 Cryogenic Engineering Conference, Georgia Institute of Technology, Atlanta, Aug 8-10, 1973. (No charge for single copy)<sup>6</sup>
- M-4 SUPERCONDUCTING ELECTRICAL GENERATORS - THEIR PROMISE AND PROBLEMS, by T. M. Flynn, R. L. Powell, D. B. Chelton and B. W. Birmingham. Paper presented at 1973 Cryogenic Engineering Conference, Georgia Institute of Technology, Atlanta, Aug 8-10, 1973. (No charge for single copy)<sup>6</sup>
- N-1 CRYOGENIC H<sub>2</sub> AND NATIONAL ENERGY NEEDS, by J. Hord. Paper presented at 1973 Cryogenic Engineering Conference, Georgia Institute of Technology, Atlanta, Aug 8-10, 1973. (No charge for single copy)<sup>6</sup>

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- <sup>5</sup> Available in hard copy from Commissioner of Patents, U. S. Patent Office, Washington, D. C. 20231, at the price indicated. Order by Patent No.
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